

## Remarks

For ease of reference, the remarks made below address the issues in the same chronological order in which they appear in the Detailed Action ('DA'), and follow the same paragraph numbering method used therein.

### **1. and 2. Amendments to the Drawings**

Two drawing 'Replacement Sheets' have been amended in the 'Revised Amendment Format' specified in the "OG Notices: 25 February 2003" correcting the following issues and complying with the requirements of the Detailed Action ('DA'):

- a. The 'lining material 48' lead lines in FIGS. 1A, 1B, 2B, and 3-5 of the original drawings were not pointing to an area of the apparatus showing its optional lining. The figures now show the lead lines pointing to an area of the apparatus having the optional lining.
- b. The DA states that both numerals 12 and 62 are referencing the same element of the apparatus, for example, when comparing the skirts depicted FIGS. 2C and 5. However, the elements 12 in FIG. 2C refer to (1.) apparel *segments* that are sized and shaped to the size and shape of apparel segments from which conventional articles of apparel are made, and element 62 of FIG. 5 refers to (2.) apparel which is comprised of a *single* contiguously formed video-displaying pixelated material, shaped to conform to a three-dimensional form of a body (with "60" being an optional zipper or other fastener). The latter embodiment anticipates a time when it will be possible to form articles of apparel out of a one-piece material, for example, pixelated material having a flexible and formable substrate. Thus, the specification discloses two apparel embodiments in each of which, one of the two distinct elements is referred, accordingly:
  - i. apparel comprised of "pixelated material 12" "segments" e.g., 20 and 22 (see FIG. 1)
  - ii. apparel made of a single "contiguously-formed pixelated material 62" (see FIG. 5)

The designation "Replacement Sheet" has been added to the two enclosed drawing sheets as specified in the DA.

### **3. Claim Objections**

- a. Per DA requirement, all numbering appearing previously within the claims, that could have been confused with referring to another numbered claim, have been deleted or changed to a lettering reference instead.

b. The applicant was unable to tell what item 3 line 2 (page 3) of the DA instruction indicated:  
Specifically: ““ “ should be changed to --:-- on claim 1, line 2.”

#### **4. Specification**

a. The title of the invention has been shortened to:

“Video-Imaging Apparel With User-Control System”

#### **5. 6. and 7. “Claim Rejections” – 35 USC 103**

##### **Independent Claims 1, 33 and 34 Clearly Define Over Albert, Fitch and Adler Under Section 102**

a. The applicant has rewritten the independent claims (claims 1, 33 and 34) and amended dependent claims to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention patentably over the prior art.

b. The structural differences (USC 102), particularly as defined in the amended claims--in view of the specification and the drawing figures--are quite distinct from the relied upon prior art. For example, the structural elements of the applicant’s invention (which are not disclosed in the prior art) include:

- i. video-imaging apparel comprised of one or more apparel segments made of highly flexible, pixelated material, the segment(s) generally having a size and shape of “an apparel segment typical of a conventional article of apparel” (amended Claim 1 and 35); or, the apparel is “made entirely of a single-piece, highly flexible and contiguously-formed pixelated material...” which is formed to “the size and shape of a conventional article of apparel” (Claim 34).
- ii. “a contiguous video-imaging surface comprised of a multitude of pixels capable of displaying standard video rate, video image content which is contiguous in appearance and which covers up to all of...” the surface of the segment(s), or the entire apparel. (Claims 1, 34, 35, see also dependent claim 33 for examples of “standard-rate video”)
- iii. video-imaging apparel segments generally sized and shaped “to conform to a three-dimensional portion of a body.” (Claims 1 and 35)
- iv. attachment means for adjoining at least one apparel segment side adjoining edge(s) to a side adjoining edge of another apparel segment to form an apparel seam which *provides for a substantially contiguous display of video image content across the seam.* (Claim 1)
- v. a portable apparatus with a user interface “equipped to playback display imagery content which is *shaped in conformance with the size and the shape of said apparel segment(s)...*” i.e., the system plays video which is correctly pre-formatted to conform to

*the shape of segment(s), or to the shape of the entire apparel surface.* (Claims 1, 34 and 35)

- vi. a self-contained, electrically powered system having a portable apparatus which provides user control, and apparel display, of: “standard video rate, video image content...” correctly pre-formatted (sized and shaped), wherein the “...video content is selected from the group consisting of a digital video source; an analog video source; a pre-recorded video source; a live video source; a color video source; a DVD; a CD-ROM; a video game; a film; an animation; a photograph; a computer-generated image; an advertisement; a promotion; a cross-promotion; a video image having the appearance of an entertainment costume; and a video image having a fabric appearance.” (Claim 33)

NOTE: See “Amendments to the Claims” section (pages 4-6) for support of the above structural elements “i-vi” in the specification text and drawing figures.

**c. The “Tiled Displays”** Albert et al ‘564 invention offers no claims pertaining to a wearable display. Thus, there are no claims / claimed structure to contrast the applicant’s claims against. There is no mention of wearable displays in the Albert abstract. No mention of the word “video” in the patent. The patent has only *two short paragraphs* which, in very brief language, refer vaguely to *six different embodiments* of “a wearable display” (within just *eight sentences*):

*“In still another aspect the invention (1) features a wearable display. A wearable display includes an article of clothing including an electrically addressable display incorporated into the wearable item and a controller in electrical communication with the display. The display comprises an encapsulated display media. In one embodiment (2), the controller is incorporated into the wearable item. In another embodiment (3,) the wearable item comprises a fashion accessory. In still another embodiment (4), the wearable item includes an interface for receiving information from another device that can be displayed by the wearable item, such as a temperature monitor or position-sensing device.”*

*“In still another embodiment (5), encapsulated electrophoretic displays are incorporated into clothing to provide a wearable display. Referring to FIG. 9, a wearable display 502 is embodied (6) as a patch on the arm 504 of a jacket 500...”* (NOTE: 1-6 numbering in brackets, was added by applicant.)

Indeed, the word “embodiment” occurs *one hundred thirty-eight times* in the Albert et al patent (albeit, with only one independent claim), and *132 ‘embodiment’ references other than ‘a wearable display.’* The first paragraph quoted above (second sentence) is the only place in the entire Albert patent where one might fairly surmise what actually makes up a “wearable display”:

*“A wearable display includes (a) “an article of clothing including (b) an electrically addressable display incorporated into the wearable item and (c) a*

1 controller in electrical communication with the display. The display comprises an  
2 encapsulated display media.” (NOTE: “a, b, c” letters were added by applicant.)  
3

4 Thus, according to the patent’s text, Albert et al *begin* with (a) a pre-existing “article of clothing”  
5 and *then* add (b) display elements onto it. This conclusion is also the only one that can  
6 reasonably be drawn in view of the single “clothing” drawing provided (FIG. 9)--in which,  
7 Albert’s depiction of a wearable display is similarly vague. The simplistic drawing shows a  
8 relatively small amount of display material covering about 10% of a coat sleeve and described  
9 as: “a wearable display 502 is embodied as a patch *on the arm 504 of a jacket 500...*”  
10

11 In contrast, the structure of the applicant’s invention does not have the Albert requirement of a  
12 pre-existing “article of clothing.” A *video-imaging* apparel is instead, made with highly flexible  
13 pixelated material (i.e., not *added to existing* apparel) as (i) a whole, formed contiguous material,  
14 or (ii) is comprised of apparel segments which are generally sized and shaped to that of  
15 conventional apparel segments. In either case, the flexible pixelated material specified is  
16 “capable of displaying *standard video rate*, video image content which is contiguous in  
17 appearance and which *covers up to all of...*” the surface of the segment(s), or the entire apparel.  
18

19 d. The Albert patent does not mention the word “video” and only uses to the term “VGA” once.  
20 The term “VGA” (video graphics array) originally referred to a particular type of controller used  
21 mainly in IBM personal computers. If a controller is described as having VGA resolution, it  
22 simply means it can display a *fixed rectangular array* of 640x480 pixels (or a *fixed rectangular*  
23 *pixel grid half that size*). The Albert specification reveals their intent to make the 640x480 grid  
24 in disclosing only one way by which any type of VGA screen is made:

25 “the tile display system includes 40.times.30 grid of 16.times.16 pixel tiles to form a *VGA*  
26 *resolution screen.*” (description in reference to DA cited FIGS. 8A-8D)

27 Thus, it requires *two hundred fifty-six* of Albert’s tiles to make *one “VGA resolution screen”*.  
28 And would presumably take a number of ‘VGA resolution screens’ (or *thousands* of their glued  
29 on tiles) to contiguously cover the surface of any in a variety of types of apparel. This presumes  
30 one can practicably cover pre-existing apparel with glued-on tiles or rectangular-formed VGA  
31 screens made of tiles. Albert et al subsequently describe their electronic display “1004” as  
32 operating by principles of other *rectangular* displays such as LCDs, plasma displays and CRTs.  
33

34 In contrast, the applicant’s invention does not require (i) a multiplicity of *electrophoretic* “tiles,”  
35 or (ii) or such tiles first made into “VGA resolution screens,” (iii ) or other *rectangular*-limited  
36 screens, which must be adhered onto *existing* clothes in order to attempt to make *video-imaging*  
37 apparel. Moreover, the Metcalf invention does not seek, nor find merit in being limited to, the  
38 ‘too-slow-for-video’ Albert *electrophoretic* technology’s 140-200m/s pixel-switching range, or  
39 its limited color capability. Electrophoresis without ‘electrowetting’ (a Philips / competing  
40 technology) remains incapable of switching pixels at standard video rates (*ten times* too slow).

1 **e. Fitch 5,912,653 Also Begins With “Garment” Then Adds Display (35 USC 102)**

2  
3 As stated in the title of the ‘653 invention, Fitch similarly discloses a: “*Garment with Program-*  
4 *mable Video Display Unit.*” This garment-first-then-display-added-on-garment approach is the  
5 focus of all of Fitch’s independent claims and thus, is the invention’s only claimed structure:

6  
7 Claim 1. “A system comprising:

8 (a) a garment;

9 (b) at least one video image display including a flexible flat panel liquid crystal *display disposed*  
10 *on an outside surface of said garment* for displaying a moving video image within said at least  
11 one video image display...”

12  
13 Claim 8. “A system comprising:

14 a garment;

15 at least one video image display including a flexible flat panel liquid crystal *display disposed on*  
16 *a surface of said garment...*”

17  
18 Claim 13. “A system comprising:

19 a garment;

20 at least one video image *display disposed on a surface of said garment* for displaying a moving  
21 video image...”

22  
23 Claim 15. “*A system adapted to be installed on a garment* comprising:

24 (a) a garment,

25 (b) at least one video image *display* including a flexible flat panel *display disposed on an outside*  
26 *surface of said garment...*”

27  
28 As mentioned above, in reference to the Albert et al patent, the Metcalf invention is not  
29 comprised of a *pre-existing garment* onto which one or more (or in the case of Albert, a  
30 multitude) of displays are then added. The video-imaging apparel of the applicant’s invention is  
31 made from highly flexible screen material itself. Thus, *both Albert et al and Fitch have the*  
32 *prerequisite of a substantial element not required in the Metcalf system, namely, “clothing”*  
33 *(Albert) and “garment” (Fitch).* And neither invention discloses a means for formatting and  
34 displaying video which is sized and shaped to that of apparel segments or to the apparel itself.

35  
36 The Metcalf system is also readily distinguished over Fitch structurally in that all of Fitch’s  
37 independent claims, and his specification, specify the employment of one LCD screen. The  
38 Metcalf invention does not seek the use of one or more LCD screens being disposed onto the  
39 outside of garments. Moreover, it is extremely difficult to envision how a plurality of LCD  
40 screens would be disposed to display video contiguously over all of the surface of such garments.

**f. Metcalf Video-Imaging Display Distinguishes Over the Numerous Elements of Adler et al**

The display means of the Adler et al 6,297,805 invention are comprised of numerous elements that are not needed in the flexible display material of the Metcalf video-imaging apparel. For example, in reference to Adler's FIG. 1 'material' the following elements are specified:

"As illustrated, a device 10 has a deformable surface 20 with an underlying deformation sensor mesh 22 for detecting surface deformation across or within multiple subregions of the deformable surface 20. The deformation sensor mesh 22 is connected to an *internally contained processor* 24 having *associated memory system* 26. For detecting various positional or environmental variables, a *sensing system* 28 is also provided. The illustrated device further includes a *feedback module* 33, which may include an externally visible *status display* 30 or a non-visual *feedback module* 31 (typically delivering auditory or tactile feedback). In the illustrated device, a *communications system* 32 for reception or *transmission* of information to other electronic or computing devices is also provided. All these components can be powered by a power supply 25, which is usually an internally mounted rechargeable battery of conventional construction."

The Metcalf video-displaying apparel / material does not require most of the embedded elements listed in the Adler display, for example: 22, 24, 26, 28, 31, 32 and 33. Thus, the structure of the Metcalf display material is substantially different from that of the Adler et al invention.-USC 102

The claim amendments enclosed with this reply to the detailed action 'DA' specify that video source material is sized and shaped to that of *an entire article of apparel*, or to *one or more apparel segments*—the latter of which being generally "sized and shaped to that of apparel segments typical of conventional apparel." Adler's 'deformable' "*user-interface*" invention ("particularly useful for portable computers") does not teach or seek to size and shape display material to that of an entire article of clothing, or to that of one or more apparel segments. Further, it does not teach the sizing and shaping of video source material to displays comprising an entire article of clothing, or to displays having one or more apparel segment shapes. Nonetheless, if conjecturing about the combining of Albert's "*user-interface*" invention with Albert and / or Fitch was reasonable, the sizing and shaping of a display material and the pre-formatting and displaying of video content would—where the Albert et al and Fitch are concerned—still have to take place on inventions requiring a pre-existing "clothing" or "garment" *onto which* a display material is *then* added, glued or embodied.

Thus, no combination of the Albert, Fitch or Adler inventions can produce the simpler structure of, or teaches the apparel-formatting and displaying of video as employed in, the applicant's video-displaying apparel. Each of the relied upon prior art inventions requires more elements in (i) how their display is made, and / or (ii) how such displays are added onto *existing* apparel. Moreover, the Albert electrophoretic material is unable to display standard rate video. (USC 102)

**7. Non-Obviousness, New and Unexpected Results -- USC 103**

In addition to the structural differences mentioned above which distinguish over Albert, Fitch and Adler (USC 102) whether the references are considered individually or as combined, the applicant's invention also has a number of elements, features and advantages that are non-obvious, new and provide unexpected results over these and the remaining references cited (USC 103).

The detailed action 'DA' suggests a combination of Albert et al 6,252,564 in view of Fitch 5,912,653, Usada 5,455,906 and Bastiaens et al 6,462,859 in order to achieve the structure and operation of the applicant's apparatus. As mentioned previously, the applicant's claims and specification state that the video-imaging apparel is generally *made of* flexible pixelated material, therefore it does not require Albert's and Fitch's pre-existing "clothing" or "garment" (respectively) onto which numerous display tiles or comparatively rigid LCD screens must then be adhered or affixed.

In fact, the DA's proposed combinations are unsuggested combinations: (1) the prior-art references do not contain any suggestion (express or implied) that they be combined, or that they be combined in the manner suggested, (2) The references are individually complete and take two different approaches. Because each reference is complete and functional in itself, there would be no reason to use parts from or substitute parts to any reference. (3) The references also take clearly different paths to reach different solutions and therefore it would not be logical to combine them.

**Poor Reference Cited** The prior-art Albert et al patent, with its *single* independent claim in view of its: *one hundred thirty-eight references to "embodiments,"* its scant description of *six different embodiments* of "a wearable display" within just *eight sentences*, its absence of any reference to the word "video," its single reference to the term "VGA" but as a "VGA *resolution* screen" having 640x480 pixels comprised of *two hundred fifty-six* tiles, and its single, simplistic drawing figure of "clothing" with a display "patch," is vague and therefore should be construed narrowly.

**Claimed Features Lacking** Even if combined, the cited references would not meet the claims.

**Modifications Necessary** It would be necessary to make modifications, not taught in the prior art, in order to combine the references in the manner suggested.

**Synergism Produced** The whole (the result achieved by the applicant's invention) is greater than the sum of its, or the prior art's, parts (i.e., over the respective results of the individual references).

**The Applicant's Claims Distinguish Over the Rectangular Screen Limitations of Usada** The Usada '906 invention, like Albert and Fitch, is concerned with *rectangular* screens. More particularly, the Usada 'electronic board' patent discloses how one or more subset areas within a conventional *rectangular* area of his electronic board display content which is different from the rest of the board's *rectangular* display area. Thus, where the sizing and shaping of displayable content on pixelated screens is concerned, each of the references is unsuccessful in advancing the art beyond what occurs on or within *rectangular* screens. In contrast, the applicant's invention does not take the prior art's conventional-screen shape approach, rather, it discloses: the sizing and shaping of displayable content which is sized and shaped to (i) that of *an entire article of apparel*, or (ii) to *one or more apparel segments*—the latter of which being generally "sized and shaped to that of apparel segments typical of conventional apparel" (see also, FIGS. 1-5).

**Bastiaens Patent Application Anticipated By Metcalf Provisional Patent Application** In regards to the cited Bastiaens patent, the applicant notes that the latter's patent application was filed six weeks after the Metcalf provisional patent application 09/929,615 filed August 15, 2000 (the latter of which is relied on by the present non-provisional application). Thus, Bastiaens' "heat-sealed, sonic-weld, mechanical sealing joints (hook-and-loop, stapled joint, glued or adhesive joint, riveted joint, button-hole joint, sewed or stitched seam joint or knotted seam joint" are all anticipated by the Metcalf provisional patent application's filing date.

Therefore, the DA-proposed combination of Bastiaens and Albert (or Fitch) is not possible, and the Bastiaens et al inventors should be notified that their patent application is anticipated by the Metcalf provisional application filing date.

**Omission of Substantial / Numerous Elements** Substantial elements of cited prior-art devices have been omitted and the prior-art versions have been made simpler without loss of capability. For example, the need for Albert's "Clothing" or Fitch's "garments" have been eliminated, in the simpler *video*-displaying apparel of the applicant's invention. The need for the numerous elements embedded in Adler's display material have also been eliminated.

**Lack of Implementation** The applicant submits that if the present invention were in fact obvious, because of its advantages, those skilled in the art surely would have implemented it by now. That is—the fact that those skilled in the art have not implemented the invention, despite its above-mentioned advantages, indicates that it is not obvious.

## **8. The Allowable Subject Matter of Claim 32**

As provided in the DA, the allowable subject matter of claim 32 has been rewritten in independent form by incorporation into the amended independent claim 1.



1 **9. Prior Art Made Of Record and Not Relied Upon**

2  
3 Similarly, the prior art made of record patent Spearing 6,679,615 is also anticipated by the  
4 Metcalf provisional patent application filing date of August 15, 2000. The inventor should be  
5 notified that his patent application is anticipated by the Metcalf provisional application filing  
6 date. The Spearing provisional application (60/282,832) was filed eight months after Metcalf, on  
7 April 10, 2001.

8  
9 As with the Albert and Fitch inventions, the prior art made of record patent Davila 4,602,191  
10 invention teaches pre-existing 'garments' onto which displaying elements are added, for example  
11 a garment having apertures through which "LED's protrude."

12  
13 **Section USC 103 and Remarks Conclusion**

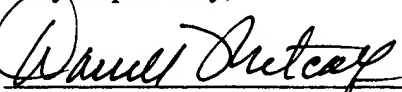
14  
15 Thus, no combination of the Albert, Fitch or Usada inventions or any of the other cited  
16 references can produce the simpler structure of, or teaches the apparel-segment(s) shaped or  
17 entire apparel shaped formatting and displaying of video as employed in, the applicant's *video-*  
18 *displaying* apparel. Thus the references are not able to achieve the utility, intended usefulness  
19 and advantages of the applicant's invention. And new, unexpected, unsuggested, unusual,  
20 superior or surprising results may be achieved with the applicant's invention. Since the amended  
21 claims define novel structure that produces new and unexpected results as described above,  
22 applicant submits that the claims are clearly patentable.

23  
24 For all the reasons given above, applicant respectfully submits that errors in the specification are  
25 corrected, the drawings have been amended as directed, the claims comply with Section 112, the  
26 claims define over the prior art under Section 102 as described in pages above, and the claimed  
27 distinctions are of patentable merit under Section 103 because of the new results also detailed  
28 above. Accordingly, applicant submits that this application is now in full condition for  
29 allowance, which action applicant respectfully solicits.

30  
31 **Request for Claim-Drafting Assistance**

32  
33 Therefore it is submitted that patentable subject matter is clearly present. If the examiner agrees  
34 but does not feel that the present claims are technically adequate, applicant respectfully requests  
35 that the examiner write acceptable claims pursuant to MPEP 707.07(j)."

36  
37 Very respectfully,

38 

39  
40 Darrell Metcalf (applicant) (805) 524-1747